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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,995	10/15/2001	Vernon T. Brady	017750-732	9493
7590	06/15/2006			EXAMINER PENDLETON, DIONNE
Frederick G. Michaud, Jr. BURNS, DOANE, SWECKER & MATHIS, L.L.P. P.O. Box 1404 Alexandria, VA 22313-1404			ART UNIT 2615	PAPER NUMBER

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/975,995	BRADY ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Dionne H. Pendleton	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 02 March 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-104 is/are pending in the application.
- 4a) Of the above claim(s) 3-10,13-18,20-24,27,28,30-35,38,39 and 41-75 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,2,19,29,40 and 76-104 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the Applicant's submission filed on 3/2/2006 has been entered.

### ***Election/Restrictions***

This application contains **claims 3-10, 13-18, 20-24, 27,28, 30-35, 38,39, and 41-75**, drawn to an invention nonelected with traverse in reply filed on 11/29/2004 . A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the *means for providing a plurality of phase-offset amplification channels*, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. ***Claims 1,19 and 29, as well as all claims dependent thereon, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The newly amended claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in***

the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Upon further review of Applicant's specification, *specifically page 7, line 15 – page 8*, the Examiner finds that the specification, as originally filed on 10/15/2001, fails to provide sufficient support for amplification means which provides a plurality of phase-offset amplification channels, as now claimed.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1,19,29 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boch (US 6,445,926) in view of Dent (US 5,574,967).**

Regarding claims 1 and 29, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above*, shown in **column 4, lines 54-57**, Boch teaches an apparatus for full-duplex wireless communication comprising a transceiver, thereby inherently reading on “comprising: means for performing at least one of modulating and demodulating information signals”;

In **column 2, lines 25-35**, Boch teaches a transceiver device, reading on “means for information transmission/reception”;

and in **column 2, lines 4-37**, teaches that the device uses orthogonal polarizations, reading on “information transmission using a first polarization and for information reception using a second polarization”.

Boch does not clearly teach that the modulated information signal is boosted in power using a plurality of phase-offset amplification channels.

**in figure 6**, Dent '967 teaches power output means which includes a plurality of amplification channels **72**; in **column 3, lines 13-36** Dent discusses the benefit utilizing amplifiers driven out of phase, and in **column 4, line 5**, Dent teaches that the device incorporates the use of non-linear amplifiers.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Boch and Dent, thereby providing a means for dissipating unwanted intermodulation products on the transmission side (also see *column 1, lines 5-11 of the Dent reference*).

Regarding claim 19, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above*, the method of claim 19 is rejected for the same reasons as set forth in the rejection of claims 1 and 29, above.

Regarding claim 40, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above*, Boch teaches a transceiver device, thereby inherently teaching both a modulator and a demodulator.

3. Claims 2,11,12,25,26,36,37,88,87,92,98,99,101 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Boch (US 6,445,926)** in view of **Dent (US 5,574,967)** and further in view of **McGeehan (US 6,229,992)**.

Regarding claim 2, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above*, Boch inherently teaches modulating means; and In **figure 6**, Dent illustrates power output means 71,72,73,75 for a wireless communication system. The combination of Boch and Dent does not clearly teach a data input means and data processing means.

In **figure 2**, McGeehan teaches a full-duplex radio apparatus having, data input means 17, and data processing means 16,11,12. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Bock, Dent and McGeehan, thereby providing a transceiver which is capable of adjustably canceling transmission signals in the receive path via sampled signal, see *column 2, lines 49-65 of the McGeehan reference*.

Regarding claims 11,25 and 36, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above*, in **figure 2**, McGeehan teaches that the transmission/reception means includes a transmission antenna 2 and a reception antenna 1 separated by a distance from said transmission antenna.

Regarding claims 12,26 and 37, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above*, in **figure 3**, McGeehan teaches that a common antenna 20 may be utilized for receiving and transmitting signals, thereby reading on “transmission/reception means further includes: a single antenna”, while in

**column 4, lines 54-57,** Boch teaches utilizing dual orthogonal polarization, which reads on “having a dual polarization capability for transmitting information with a first polarization, and for receiving information with a second polarization.”

Regarding claims 86 and 87, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above, in figure 2,* the receiver 1 of McGeehan inherently teaches demodulating means, while that signal which is received by antenna 1 is interpreted as reading on “data input means”, and circuit elements 13-15, 19,17 and 16 are broadly interpreted as reading on “data processing means”, as broadly claimed.

Regarding claim 92, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above, in figure 2,* the transmitter 2 of McGeehan inherently teaches modulating means, reading on “modulating information for transmission as a modulated signal”; while **figure 6** of Dent teaches splitting a signal via 71 from data processing means (*where inputs 1-N are interpreted as the output signals of a “data processing” means*), into said plural, parallel amplification channels 72.

Regarding claim 98, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above, in figure 6* of Dent teaches a transceiver including: plural, parallel amplification channels 72.

Regarding claim 99, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above, figure 6* of Dent teaches at least one coupler 71, for splitting a signal from said data processing means(*where inputs 1-N are interpreted as the output signals of a “data processing” means,*) into said plural, parallel amplification channels 72.

Regarding claim 101, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above*, in **figure 6**, Dent teaches at least one device 73 for combining outputs of each of said plural, parallel amplification channels 72 into a single output channel 1.

4. Claims **84,85,95,96,103 and 104** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Boch (US 6,445,926)** in view of **Dent (US 5,574,967)** and further in view of **McGeehan (US 6,229,992)**, as applied to claims 11,25 and 36 above, and further in view of **Fenter (US 4,459,651)**.

Regarding claims 84,95 and 103, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above*, the combined prior art Boch, Dent and McGeehan, does not clearly teach regulator means for providing a regulated DC output voltage to said performing means.

Shown in **figure 2**, Fenter teaches a regulator means **161 & 300**, having at least one voltage regulator **161** for providing a regulated DC output voltage to said performing means. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited art references and Fenter, for the purpose of minimizing power consumption and maximizing energy transfer, see *column 2, lines 10-14 in the Fenter reference*.

Regarding claims 85,96 and 104, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above*, shown in **figure 2**, and discussed in **column 8, lines 43-65**, Fenter teaches at least two DC voltage outputs, *to unit 240 and to circuit*

*arrangement comprising diodes 202 & 212; and means for inhibiting a first of said two DC voltage outputs, namely, that output to unit 240, when a second of said two DC voltage outputs is above a predetermined threshold.*

5. **Claim 89** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Boch (US 6,445,926)** in view of **Dent (US 5,574,967)** and further in view of **McGeehan (US 6,229,992)**, as applied to claim 87, and further in view of **Bhame (US 5,911,117)**.

Regarding claim 89, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above*, the combination of Boch, Dent and McGeehan, does not clearly teach a hermetically sealed housing.

Shown in figure 3, and discussed in **column 9, lines 12-17, and column 13, lines 37-43**, Bhame teaches transceiver components 31, as well as *radio equipment* for sending and receiving radio signals, reading on “modulating means and said demodulating means”; Bhame further teaches that said transceiver components, and radio equipment is enclosed within housing 33, reading on “hermitically sealed housing”. It would have been obvious for one of ordinary skill in the art at the time of the invention combine the teachings of Boch, Dent, McGeehan and Bhame, thereby providing a protective housing for the radio communication components, as is well understood in the art.

6. Claims **76-79,81-83,88,90,91 and 97** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Boch (US 6,445,926)** in view of **Dent (US 5,574,967)** and

further in view of **McGeehan (US 6,229,992)**, as applied to claims 11,25 and 36 above, and further in view of **Dent (US 6,157,811)**.

Regarding claims 76,77,90,91 and 97, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above*, the combination of Boch, Dent '967 and McGeehan, does not clearly teach that said data input means is configured to receive data modulated on an intermediate frequency of 2-3 GHz, and includes a local oscillator for modulating said data with a frequency on the order of 18 GHz.

**In column 12, lines 49-54**, Dent '811 teaches generating a signal modulated at 2-3 GHz and later mixing the signal with a 18 GHZ local oscillator. Therefore, It would be obvious for one of ordinary skill in the art at the time of the invention to modulate data on an intermediate frequency of 2-3 GHz, and to include a local oscillator for modulating data with a frequency on the order of 18 GHz, thereby maintaining coherent beam signal transport, see *column 3, lines 7-11*, as well as *column 7, line 65 – column 8, line 3 of the Dent '811 reference*.

Regarding claim 78, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above, in figure 6*, Dent '967 teaches power output means further includes: plural, parallel amplification channels **72**.

Regarding claim 79, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above, in figure 6*, Dent '967 teaches that said power output means further includes: at least one coupler **71**, for splitting a signal (see *inputs 1-N*) from said data processing means into said plural, parallel amplification channels **72**.

*Regarding claim 81, and as best understood with regard to the U.S.C. 112 first paragraph rejection above, in figure 6, Dent '967 teaches that said power output means further includes: at least one device 73 for combining outputs from each of said plural, parallel amplification channels 72 into a single output channel 1.*

*Regarding claim 82, and as best understood with regard to the U.S.C. 112 first paragraph rejection above, in column 20, lines 34-36, Dent '967 teaches at least one coupler is a 90 degree hybrid.*

*Regarding claim 83, and as best understood with regard to the U.S.C. 112 first paragraph rejection above, in figure 6, Dent '967 teaches that said power output means further includes: at least one device 73 for combining outputs from each of said plural, parallel amplification channels 72 into a single output channel 1.*

*Regarding claim 88, and as best understood with regard to the U.S.C. 112 first paragraph rejection above, Dent '811 teaches a Local oscillator for supplying a modulating signal to said modulating means; while Boch inherently teaches providing a demodulating signal to said demodulating means, as is well understood as existing in receiving elements in transceiver devices.*

7. Claims 80, 93, 94, 101 and 102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boch (US 6,445,926) in view of Dent (US 5,574,967) and further in view of McGeehan (US 6,229,992), as applied to claims 11,25 and 36 above, and further in view of Leroux (US 5,745,009).

Regarding claims 80,93,100, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above, in figure 6*, Dent '967 teaches that dependent upon the number of inputs "N", the modulated information signal is split into four separate amplification channels (see *multiple pair-wise combiners 73*). Dent '967 does not clearly teach that the four separate amplification channels produce a 0.5 W output in each channel.

In **column 2, lines 43-55**, Leroux teaches an amplifier circuit for a telecommunications device, which produces a powerful output, typically 0.5W. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the prior art, and Leroux, for the purpose of applying a positive supply voltage without parasitic current peaks, see *column 2, lines 52-54 of the Leroux reference*.

Regarding claim 94, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above, in figure 6*, Dent '967 teaches that said power output means further includes: at least one device 73 for combining outputs from each of said plural, parallel amplification channels 72 into a single output channel 1.

Regarding claim 102, *and as best understood with regard to the U.S.C. 112 first paragraph rejection above, in column 20, lines 34-36*, Dent '967 teaches at least one coupler is a 90 degree hybrid.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne N Harvey whose telephone number is 571-272-7497. The examiner can normally be reached on 9-5:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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